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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/735,573	12/12/2003	Francis T. McGreevy	24.352	2552
28785	7590	05/24/2007	EXAMINER	
JOHN R LEY, LLC			CHANG, SUNRAY	
5299 DTC BLVD, SUITE 610			ART UNIT	PAPER NUMBER
GREENWOOD VILLAGE, CO 80111			2121	
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			05/24/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/735,573	MCGREEVY, FRANCIS T.
Examiner	Art Unit	
Sunray Chang	2121	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 26 February 2007.  
2a)  This action is **FINAL**.                    2b)  This action is non-final.  
3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### **Disposition of Claims**

4)  Claim(s) 1-17, 19-25, 29, 34-45, 47, 52, 56-61, 66-81, 84-99, 103-108 and 112-140 is/are pending in the application.  
4a) Of the above claim(s) See Continuation Sheet is/are withdrawn from consideration.  
5)  Claim(s) \_\_\_\_\_ is/are allowed.  
6)  Claim(s) 1-17, 19-25, 29, 34-45, 47, 52, 56-61, 66-81, 84-99, 103-108 and 112-140 is/are rejected.  
7)  Claim(s) \_\_\_\_\_ is/are objected to.  
8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on \_\_\_\_\_ is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892) 4)  Interview Summary (PTO-413).  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948) Paper No(s)/Mail Date. \_\_\_\_.  
3)  Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_ 5)  Notice of Informal Patent Application  
6)  Other: \_\_\_\_.

Continuation of Disposition of Claims: Claims withdrawn from consideration are 18,26-28,30-33,46,48-51,53-55,62-65,82,83,100-102 and 109-111.

**DETAILED ACTION**

1. This office action is in responsive to the paper filed on February 26<sup>th</sup>, 2007.

Claims 1 – 17, 19 – 25, 29, 34 – 45, 47, 52, 56 – 61, 66 – 81, 84 – 99, 103 – 108 and 112 – 140 are presented for examination.

Claims 1 – 17, 19 – 25, 29, 34 – 45, 47, 52, 56 – 61, 66 – 81, 84 – 99, 103 – 108 and 112 – 140 are rejected.

Claims 18, 26 – 28, 30 – 33, 46, 48 – 51, 53 – 55, 62 – 65, 82, 83, 100 – 102 and 109 – 111 are cancelled and claims 112 – 240 are newly cited in the response filed on February 26<sup>th</sup>, 2007.

**Claim Rejections - 35 USC § 103**

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

2. **Claims 1 – 7, 17, 19, 25, 66 – 71, 73, 81 and 97 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fritz Peter (U.S. Patent No. 6,175,610 and referred to as **Peter** hereinafter), and in view of Wolfgang R. Daum (U.S. Patent No. 5,599,151 and referred to as **Daum** hereinafter).**

**(Peter as set forth above generally discloses the basic inventions.)**

**Regarding claims 1, 3, 5, 7, 17, 25, 66, 70, 81 and 97**

**Peter teaches,**

- A virtual control system [a virtual system, Col. 1, line 57 – Col. 2, line 13] for controlling surgical equipment [medical-technical system, Col. 1, lines 7 – 9] in an operating room [operation site, Col. 3, lines 41 – 42] while a surgeon performs a surgical procedure on a patient [operation, Col. 3, lines 3 – 7], comprising:
  - a virtual control device including an image of a control device located on a surface [a projector projects, on a projection surface, images of at least one operating element for at least one system components, Col. 1, lines 39 – 46] and
  - a sensor for interrogating contact interaction of an object with the image on the surface, [visual detector detects the position and/or motion of an appendage of an operator on the projection surface, Col. 1, lines 46 – 53]

The examiner further explains, **Peter teaches**, Col. 1, line 57 – Col. 2, line 3, “The invention can be considered as a virtual system, which does not require a video monitor as an input unit. The projection surface can be a smooth surface of the system that is already present anyway and is positioned conveniently relative to the operator. If no such

surfaces are present, special projection surfaces can be provided that are preferably of plate-like construction and thus have a substantially smaller space requirement than do video monitors in the case of conventional touch screens. The invention therefore makes it possible to arrange the operating elements relative to an operator in such a way that comfortable operation is possible", it is very clear that **Peter**'s invention can be used as a simulated conventional **touch screen** which needs the finger to touch or contact with the panel or plate.

Further, the cited references in the record includes a **Tomasi** reference which teaches a virtual keyboard which sends a keyboard event to the system based on "a touch" of a user's finger to the work surface [Col. 8, lines 1 – 15; Fig. 1A] which can be combined together with **Peter** reference to form a touch activates a "touch screen" to be "contact interaction.

- the virtual control device delivering an interaction signal indicative of the contact interaction of the object with the image; [detector generates a detector output dependent on the detected position and/or motion, Col. 1, lines 49 – 50; ] and
- a system controller connected to receive the interaction signal from the virtual control device and to deliver a control signal to the surgical equipment in response to the interaction signal to control the surgical equipment in response to the interaction of the object with the image. [the output of the detector is supplied to a control unit, which controls the system component dependent on the detected movement and/or position, Col. 1, lines 50 – 53]

**Peter** teaches medical-technical system, yet does not specify a surgery medical-technical system.

Daum teaches surgical equipments and surgical procedure [Abstract, Col. 1, lines 5 – 6; see further Col. 3, lines 9 – 41, Col. 5, lines 25 – 40], for the purpose of working in inaccessible areas and cavities, Col. 1, lines 5 – 6].

It would have been obvious to a person of ordinary skill in the art at the time of applicant's invention to modify the teaching of Peter to specify the medical-technical system can be surgery system, for the purpose of working in inaccessible areas and cavities, Col. 1, lines 5 – 6].

**Regarding claims 2, 67, 68 and 73,**

- the object is one of a finger or a foot of the surgeon; [Col. 2, lines 54 – 56]
- the image is one of a projected light image or a printed image of a control panel for the surgical equipment; [a projector projects on a projection surface, images of at least one operating element, Col. 1, lines 41 – 42; Fig. 10]
- the image includes at least one contact control area which represents a control function of the surgical equipment; [the output of the detector is supplied to a control unit, which controls the system component dependent on the detected movement and/or position, Col. 1, lines 50 – 53] and
- the interaction with the image is contact of the object with the contact control area. [detected position and/or motion, Col. 1, lines 39 – 56]

**Regarding claims 4 and 69**

- the object is a finger of the surgeon; [Col. 1, lines 54 – 56]

- the image of the control device is an image of a control panel of the surgical equipment; [Col. 1, lines 49 – 53]
- the interaction with the image is contact of the surgeon's finger with the contact control area; [Col. 1, lines 39 – 56] and
- the image of the control panel is located within a sterile field of the surgical procedure; [operation site, Col. 3, lines 41 – 42; Fig. 7]

**Regarding claim 6,**

- the image of the control panel includes a multiplicity of different contact control areas; [Fig. 8 – 10]
- each contact control area representing a different control function of the surgical equipment; [Fig. 8 – 10] and
- the sensor optically interrogates the interaction of the object with each of the different contact control areas. [Col. 1, lines 46 – 53]

**Regarding claims 7 and 71,**

- the image is a projected light image; [Peter, Fig. 10]
- the virtual control device further includes an image projector which projects the light image of the control panel; [Peter, Fig. 10] and
- the virtual control device projects the image of the control panel on surgical drapes adjacent to a surgical site and within the sterile field. [Fig. 7]

**Regarding claim 19,**

**Peter teaches,**

- the signal supplied by the optical sensor relates to the degree of separation of the object from the contact control area. [position of the finger on the projection surface, Col. 2, lines 4 – 13]

3. **Claims 8 – 10, 74 and 75 are rejected** under 35 U.S.C. 103(a) as being unpatentable over **Peter** in view of **Daum**, further in view of Yulun Wang (U.S. Patent No. 5,524,180 and referred to as **Wang** hereinafter)

**Regarding claims 8, 74 and 75**

**Peter and Daum** do not teach the object is a foot of the surgeon to control the system.

**Wang** teaches foot controlling a surgical system on a floor beneath an operating table [a computer which controls the movement of the robotic arm in response to input signals received from the foot pedal can be operated by the foot of a surgeon, Abstract; Fig. 1], for the purpose of remotely controlling the position of a surgical instrument, Col. 1, line 13]

**Regarding claim 9,**

**Peter teaches,**

- the sensor optically interrogates the contact interaction of the surgeon's foot with the image. [visual detector detects the position and/or motion of an appendage of an operator on the projection surface, Col. 1, lines 46 – 53]

**Wang** teaches foot controlling a surgical system on a floor beneath an operating table [a computer which controls the movement of the robotic arm in response to input signals received

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from the foot pedal can be operated by the foot of a surgeon, Abstract; Fig. 1], for the purpose of remotely controlling the position of a surgical instrument, Col. 1, line 13]

**Regarding claim 10,**

**Peter** teaches,

- the contact control area of the image represents an activation function of the surgical equipment. [carries out the actuation of the operating step corresponding the the respective operating element, Col. 4, lines 14 – 15]

4. **Claim 11 are rejected** under 35 U.S.C. 103(a) as being unpatentable over **Peter** in view of **Daum**, further in view of **Wang** and **Nestor Voronka** (U.S. Patent No. 6,801,637 and referred to as **Voronka** hereinafter)

**Peter** teaches,

- the image is a projected light image; [**Peter**, Fig. 10]
- the virtual control device further includes an image projector which projects the light image of the control panel; [**Peter**, Fig. 10] and

**Wang** teaches foot controlling a surgical system on a floor beneath an operating table [a computer which controls the movement of the robotic arm in response to input signals received from the foot pedal can be operated by the foot of a surgeon, Abstract; Fig. 1], for the purpose of remotely controlling the position of a surgical instrument, Col. 1, line 13]

**Daum** teaches surgical equipments and surgical procedure [Abstract, Col. 1, lines 5 – 6; see further Col. 3, lines 9 – 41, Col. 5, lines 25 – 40], for the purpose of working in inaccessible areas and cavities, Col. 1, lines 5 – 6].

**Peter, Daum and Wang** do not teach a position tag to be attached to the surgeon's foot and the sensor optically interrogates the position of the position tag.

**Voronka** teaches position tags can be attached to several different places on a human body [Fig. 1] for the purpose of optically monitoring and recording full-body and partial-body movements. [Col. 1, lines 15 – 17]

5. **Claim 12 – 16, 20 – 24, 72 and 76 – 80 are rejected** under 35 U.S.C. 103(a) as being unpatentable over **Peter** in view of **Daum**, further in view of **Wang, Voronka** and **Carlo Tomasi** (U.S. Patent No. 6,710,770 and referred to as **Tomasi** hereinafter)

**Peter, Daum, Wang and Voronka** do not teach the image projector projects the image of the contact control area on the floor at a position relative to the interrogated position of the position tag.

**Tomasi** teaches the image projector projects the image of the contact control area on the floor at a position relative to the interrogated position of the position tag [localize the point of interaction or intersection which plane, Col. 9, lines 51 – 62; further se Col. 9, line 63 – Col. 10, line 51] for the purpose of localize the point of interaction or intersection which plane. [Col. 9, lines 51 – 62]

**Tomasi** further teaches,

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- a device controller connected to the light source and sensor and which is operative to determine interaction of the object with the contact control area based on relative timing information between corresponding pulses of the incident light and the reflected light and the scanning angle of the incident light which causes the reflected light. [Col. 3, line 56 – Col. 4, line 5]
- an image projector to project a beam of image light to create the image and the contact control area of the image. [Fig. 1A, 1B, 1C]
- the device controller is connected to the light source to control the scanning angles of the pulsed beam of incident light in correlation with the projection angles of the beam of image light; [Col. 2, line 60 – Col. 3, line 33] and
- the device controller interrogates interaction of the object with the contact control area based on the correlated relationship between scanning angles of the incident light and the projection angles of the image light and the relative timing between corresponding pulses of the incident light and the reflected light. [Col. 3, line 27 – 33]

6. **Claims 29, 56, 84, 85, 94 – 96, 98 and 108 are rejected** under 35 U.S.C. 103(a) as being unpatentable over **Peter** in view of **Daum**, further in view of Jerome H. Lemelson (U.S. Patent No. 6,847,336 and referred to as **Lemelson** hereinafter)

**Peter** and **Daum** do not teach a heads up projector projects on a face shield the patient's condition, functionality of the surgical equipment, and surgeon's procedure.

**Lemelson** teaches a heads up projector projects on a face shield the patient's condition, functionality of the surgical equipment, and surgeon's procedure. [Abstract; Fig. 1 & 2, Col. 1,

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lines 6 – 12, Col. 4, line 64 – Col. 6, line 49] for the purpose of providing a hand free heads-up display system. [Col. 4, lines 64 – 67]

**Lemelson** further teaches a speech recognition. [Col. 5, line 15 – Col. 6, line 9], for the purpose of providing a hand free heads-up display system. [Col. 4, lines 64 – 67]

7. **Claims 34 – 45, 47, 52, 57 – 61, 86 – 93, 99 and 103 – 107, are rejected under 35 U.S.C. 103(a) as being unpatentable over **Peter** in view of **Daum**, further in view of **Lemelson** and Michael Irl Rabin (U.S. Patent No. 6,603,464 and referred to as **Rabin** hereinafter)**

**Peter, Daum and Lemelson** do not teach a scanner scanning the ID tag to get information from patients, equipments and surgeons.

**Rabin** teaches a scanner scanning the ID tag to get information from patients, equipments and surgeons for use in medical field and a password protection [Col. 6, line 42 – Col. 8, line 23] for the purpose of capturing identification information. [Col. 6, lines 42 – 43]

8. **Claims 112 – 140, have been considered and examined, yet, having been rejected for the same reason indicated in the rejections to claims 1 – 17, 19 – 25, 29, 34 – 45, 47, 52, 56 – 61, 66 – 81, 84 – 99 and 103 – 108 as listed above in current office action.**

**Response to Amendment**

**Claim Rejections - 35 USC § 103**

9. Applicant's arguments regarding **Peter** reference fail to teach "contact" which is disagreed with. **Peter** teaches, in Col. 1, line 57 – Col. 2, line 3, "The invention can be

considered as a virtual system, which does not require a video monitor as an input unit. The projection surface can be a smooth surface of the system that is already present anyway and is positioned conveniently relative to the operator. If no such surfaces are present, special projection surfaces can be provided that are preferably of plate-like construction and thus have a substantially smaller space requirement than do video monitors in the case of conventional touch screens", which presents **Peter**'s invention can be used to replace a "conventional touch screen" which clearly indicates the "touch" function, which is "contacting" the panel, or the plate as "contact interaction of an object with the image on the surface.

10. **Peter** teaches a medical technical system in an operation room with virtual display of the function board to control the equipment. **Daum** teaches a surgical equipments and surgical procedure which can be the medical technical system in **Peter**. **Wang** teaches a computer which controls the movement of the robotic arm in response to input signals received from the foot pedal can be operated by the foot of a surgeon; the foot of a surgeon can be the one to control **Peter**'s medical technical system; **Voronka** teaches a tag; **Tomasi** teaches the image projector projects the image of the contact control area; **Lemelson** teaches a heads up projector projects on a face shield, further teaches a speech recognition, **Rabin** teaches a scanner scanning the ID tag to get information from patients, equipments and surgeons for use in medical field and a password protection. Each limitation in current claim sets have been considered and rejected with individual provided motivations for combining the references.

**Conclusion**

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sunray Chang who may be reached Monday through Friday, between 8:00 a.m. and 5:00 p.m. EST. via telephone number (571) 272-3682 or facsimile transmission (571) 273-3682 or email [sunray.chang@uspto.gov](mailto:sunray.chang@uspto.gov).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Knight can be reached on (571) 272-3687.

The official facsimile transmission number for the organization where this application or proceeding is assigned is (571) 273-8300.



Anthony Knight  
Supervisory Primary Examiner  
Group Art Unit 2121  
Technology Center 2100  
U.S. Patent and Trademark Office

May 9, 2007